Claim Amendments

1. (currently amended) A method for amplifying a signal from a binding assay, said method comprising:

providing a reaction mixture comprising in combination:

a medium suspected of containing an analyte;

a first specific binding pair member bound to a support;

a second specific binding pair member bound to a sensitizer capable in its excited state of generating a reactive oxygen species, wherein the proximity of first specific binding pair member with the second specific binding pair member is modulated by the presence of the analyte; and

a substrate bound to the support, wherein the substrate comprises a detectable product linked to the substrate through a reactive oxygen cleavable linker;

incubating the reaction mixture;

exciting the sensitizer, said excitation of the sensitizer causing the formation of reactive oxygen, which cleaves the cleavable linker and releases detectable product from the support; and

detecting the released detectable product wherein the step of detecting the released detectable product comprises the steps of:

separating the released detectable product from the substrate bound to ~~associated with~~ the support;

adding to the separated released detectable product a third specific binding pair member capable of binding directly ~~or indirectly~~ to the released detectable product or capable of binding specifically to a specific binding pair member or to a complex of two or more sbp members which is capable of binding to the detectable product;

allowing the third specific binding pair member to bind to the released detectable product; and

detecting the bound third specific binding pair member.

2. (previously presented) The method of claim 1 wherein:

the proximity of the first and second specific binding pair members to one another results from the binding of the first and second specific binding pair members to the analyte;

the sensitizer is a photosensitizer;

the reactive oxygen species is singlet oxygen; and

the excitation step comprises irradiation of the photosensitizer with light.

3. (previously presented) The method of claim 2 wherein:

the analyte, first specific binding pair member, and second specific binding pair member are polynucleotides;

the substrate comprises digoxigenin-linked biotin; and

the step of detecting the released detectable product is carried out by a detection method employing, as the third specific binding pair member, avidin bound to a member of a signal producing system or anti-digoxigenin antibodies bound to a member of a signal producing system or both.

4. (previously presented) The method of claim 2 wherein the reactive oxygen cleavable linker comprises an olefin or an aromatic compound and said olefin or said aromatic compound is cleaved by reactive oxygen.

5. (original) The method of claim 4 wherein said olefin is selected from the group consisting of dioxenes, thioxenes, oxazines, dithienes, thioenolethers, enolethers, and enamines.

6. (original) The method of claim 4 wherein said aromatic compound is selected from the group consisting of oxazoles, thiazoles, imidazoles, naphthalenes, anthracenes and diacylhydrazides.

Claims 7-36 (canceled) .

37. (previously presented) A method according to Claim 3 wherein said signal producing system involves generation of luminescence.

38. (previously presented) A method according to Claim 37 wherein avidin is bound to a photosensitizer and anti-digoxigenin antibodies are bound to a chemiluminescer molecule.

39. (previously presented) A method according to Claim 3 wherein said signal producing system involves generation of fluorescence.

40. (previously presented) A method according to Claim 39 wherein avidin is bound to a photosensitizer and anti-digoxigenin antibodies are bound to a photoactive indicator precursor.

41. (previously presented) A method according to Claim 3 wherein said signal producing system involves enzyme activity.

42. (previously presented) A method according to Claim 3 wherein said signal producing system involves radioactivity.

43. (previously presented) A method according to Claim 3 wherein said signal producing system involves fluorescence energy transfer.

44. (currently amended) A method for amplifying a signal from a binding assay, said method comprising:

providing a reaction mixture comprising in combination:

a medium suspected of containing an analyte;

a first specific binding pair member bound to a support;

a second specific binding pair member bound to a sensitizer capable in its excited state of generating a reactive oxygen species, wherein the proximity of first specific binding pair member with the second specific binding pair member is modulated by the presence of the analyte; and

a substrate bound to the support, said substrate comprising digoxigenin-linked biotin linked to the substrate through a reactive oxygen cleavable linker ~~wherein the substrate comprises digoxigenin-linked biotin~~;

incubating the reaction mixture;

exciting the sensitizer, said excitation of the sensitizer causing the formation of reactive oxygen, which cleaves the cleavable linker and releases digoxigenin-linked biotin ~~detectable product~~ from the support; and

detecting the released digoxigenin-linked biotin ~~detectable product~~.

45. (previously presented) The method of claim 44 wherein:

the proximity of the first and second specific binding pair members to one another results from the binding of the first and second specific binding pair members to the analyte;

the sensitizer is a photosensitizer;

the reactive oxygen species is singlet oxygen; and

the excitation step comprises irradiation of the photosensitizer with light.

46. (currently amended) The method of claim 44 wherein:

the step of detecting the released digoxigenin-linked biotin ~~detectable product~~ is carried out by a detection method employing, as a third specific binding pair member, avidin bound to a member of a signal producing system or anti-digoxigenin antibodies bound to a member of a signal producing system or both.